Victorian 6502 User Group Newsletter

KAOS

For People Who Have Got Smart

OSI SYM KIM AIM UK101 RABBLE 65

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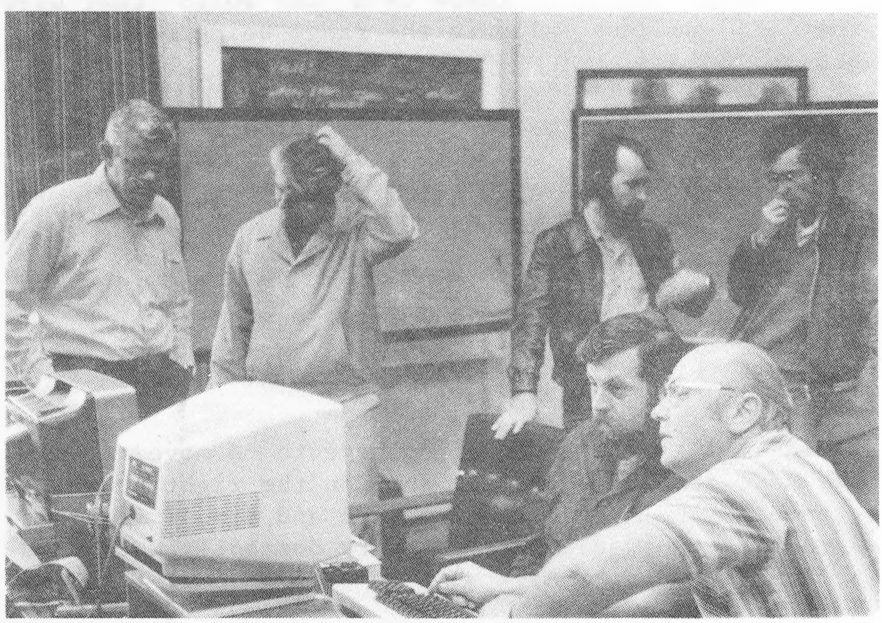

6 WISE MEN
Earnest discussions at the March meeting.

From left:
Erik Sundstrup, Clive Harman, David Dodds, Rodney Eisfelder.

Seated:
Kevin Charleson, Bob Bretterecker.

The next meeting will be at 2pm on Sunday 29th April at the Essendon Primary School which is on the corner of Raleigh and Nicholson Streets, Essendon. The school will be open at 1pm.

The closing date for articles for the next newsletter is 11th May.

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MY SUPERBOARD Part 9

by John Whitehead

I use a word processor to write all my KAOS articles, then save them on tape and pass them to Ian who loads them into his machine and prints them out on the IBM typewriter.

I use a version of WP 6502 V1.2 which I have greatly modified to suit my series II in 48x12 mode and to enable it to run in EPROM at $8000.

Relocating WP using EXMON was not straight forward as not all the code relocated correctly. One problem was caused by several instructions similar to the code on the left below :-

```
0 15 A202   LDX #$02
0317 2CA204 BIT $04A2          0318 A204   LDX #$04
031A F610   INC $10,X          031A F610   INC $10,X
```

The 'BIT' instruction is a dummy one and when the code is dissasembled one byte on, it turns into 'LDX'. Somewhere in WP there is a 'JMP $0318' that uses the above code. Because the 'BIT' address falls in the range being relocated, the '04' incorrectly changes to '80'.

Another problem was self modifing code as on the left below :-

```
02A9 8DB802 STA $02B8          82B4 A000   LDY #$00
02AC 8DC902 STA $02C9          82B6 20B602 JSR $02B6
02AF 204503 JSR $0345          82B9 E8     INX
02B2 A200   LDX #$00
02B4 A000   LDY #$00           02B6 BD**?? LDA $**??,X
02B6 BD**?? LDA $1FE0,X        02B9 60     RTS
02B9 E8     INX
```

The small sections of code that are self modifing have to be moved to RAM when WP is first run and the code is changedto that show on the right above. There were other problems that took me a long time to find and fix, I also had to rewrite the View screen routine because it did not work correctly when tabs were used. I also added a 'View from' option.

My WP in EPROM can be run by pressing BREAK M 8000 G or from EXMON. This runs WP but does not do a cold start. This is so that I can escape to EXMON and then return without loosing text. When WP is first used, Zap has to be performed and this fills RAM from $0300 to the end the of RAM with $FB. Don't reduce the size of RAM after this,or WP won't be able to find the new end of RAM.

WP uses an @ char. as its end of file marker. If this marker is missing, text will be followed by garbage. To recover from this, try to find the end of text using a monitor. Then insert a @ and return to WP.

Battery backed up RAM can be used to store the current text file by using EXMON. I have 16k of this RAM from $2000 to $5FFF.
This allows me to keep two 8k text files andswap between them.
To save text, I Move to $2300 from $0300,$2000. I then have to manualy put the RAM in write protect to prevent data being lost at power down (see KAOS Sep 82). To continue after a power up, enter WP, do a Zap, exit to EXMON and Move text from $2300,$6000 to $0300, then return to WP.

I read in ETI Jan 84 page 90 that there is an upgraded 6116 specialy for auto power down. It is a Hitachi HM6117LP and is used with a ICL7665 voltage detector.

RABBLE CP/M

This is a fully solicited but unpaid advertisment.
Compiled by Paul Dodd and written by Ron Cork.

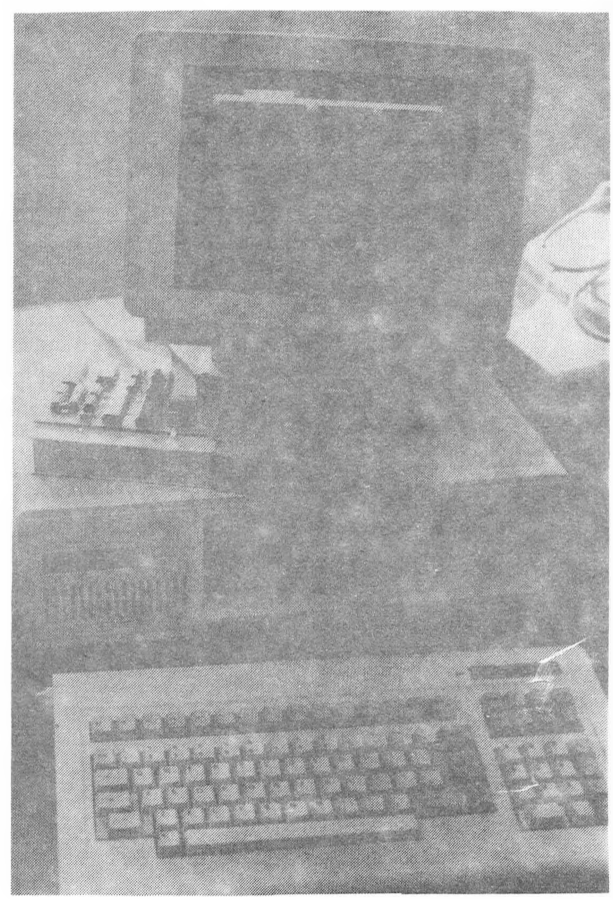
The Rabble/OSI CP/M system consists of two small, (6"x4.5"), boards patched together via a short length of ribbon cable and interfaced to the computer, also by a ribbon, thru a 20 pin I/O connector.

Z80 CARD

CPU is a Z80 running at 4MHz, with the possibility of a Z80B at 6MHz soon. 64K dynamic RAM which takes-up approx. 2"x1.5" of board space. 2K EPROM holding the monitor software. PIO for general communications. Speed efficiency...so far tested at 20% faster than the MicroBee, which is supposed to be pretty fast on CP/M.

FLOPPY DISKS

Runs both 5.25" and 8" simultaniously and concurrently, (i.e. both together without any hardware or manual switching between drive types), in either single or double density. Uses the Western Digital Floppy disk controller 279x chip. Will read almost any CP/M format, (but not Apple or OS CP/M...OSI's version).



SOFTWARE

CP/M boot routine. Intelligent terminal which will emulate ANY terminal. Z80 monitor. Print Spooler. Has type-ahead keyboard drivers/buffers as well as disk buffering. Disk Formatter and Copier. On-line manual, (like a HELP function but more explicit), just type... MAN subject ... Runs Wordstar(tm), Zork, Visicalc, as well as all the other standard CP/M software available everywhere.

The boards are only available together as built & tested. No kits or parts will be sold separately to ensure a consistant working system and to confine BUG catching to COMPSOFT's own handy-work.

PRICE

For all the above-mentioned hardware and soft/firmware, (excluding propriety software), the price is $390 inc. tax.
Contact COMPSOFT on 03 429 9686.

NOTE

Available soon will be a 6502 cross-assembler with upload/download facilities which will enable you to write 6502 code under CP/M.

Also, CompDOS will be updated in the near future, to use the new disk format and will be available to buyers of the system at no extra charge. This will allow you to run both CompDOS and CP/M at basically the same time, being able to switch in and out of either DOS without loosing stored routines.

Superboard

April, 1984.

NEWSLETTER OF THE OHIO SUPERBOARD USER GROUP, 146 YORK STREET, NUNDAH, 4012

WONDER WORD SOLVER by Ross Beneke.

Here is a program to solve those word cage puzzles which appear every week in the leisure section of Sunday newspapers.
The program finds any occurrences of a word, it's location and direction, within a second. While this might be seen as spoiling the original purpose of the puzzle, being to provide a leisure activity, it did suggest an ideal opportunity for a more interesting exercise, the writing of a problem - solving program.

A sample word cage puzzle is provided for you to try it out. With minor alterations to lines 215, 235, and 240, it will run on almost any computer.

```
100 FORX=1TO30:PRINT:NEXT:PRINTTAB(3)"WONDER WORD SOLVER":PRINT
105 PRINTTAB(2)"by Ross Beneke, 1983":PRINT
110 PRINT"It will discover the rowcolumn and direction of each word.
115 PRINT"To change anything,type in 'Z' when asked for  the word.
120 PRINT:INPUT"Number of columns";C
125 PRINT:INPUT"Number of rows";R:FORX=1TO8:READD1(X),D2(X):NEXT
130 DIMW$(C+1,R+1):PRINT:FORX=1TOR
135 PRINT"Row"X;:INPUTA$
140 IFLEN(A$)<>CTHENPRINT"You did say"C"columns":GOTO135
145 FORY=1TOC:W$(Y,X)=MID$(A$,Y,1):NEXTY,X:FORX=1TO30:PRINT:NEXT
150 PRINT:INPUT"Which word do you want  to find";A$
155 IFA$="Z"GOTO230
160 PRINT:PRINT"SEARCHING":FORX=1TOR:FORY=1TOC
165 IFW$(Y,X)<>LEFT$(A$,1)GOTO180
170 FORD=1TO8:IFW$(Y+D1(D),X+D2(D))=MID$(A$,2,1)GOTO195
175 NEXTD
180 NEXTY,X:PRINT
185 IFF=0THENPRINTA$" is not there!":GOTO150
190 F=0:PRINT"Search completed.":GOTO150
195 A=Y:B=X:FORP=1TOLEN(A$):IFW$(A,B)<>MID$(A$,P,1)ANDD<8GOTO175
200 IFW$(A,B)<>MID$(A$,P,1)ANDD=8GOTO180
205 A=A+D1(D):B=B+D2(D):NEXTP:PRINT
210 PRINTA$" found at:-":PRINT:PRINT"Column"TAB(9)Y
215 PRINT"Row"TAB(9)X:PRINT"Direction "CHR$(15+D):PRINT:F=1
220 PRINT"Looking for more!":IFD<8GOTO175
225 GOTO180
230 PRINT:PRINT:PRINT"Do you want to:-":PRINT"1 change a row.
235 PRINT"2 printout the puzzle.":INPUT"3 return to search";A$
240 A=ASC(A$)-48:IFA<1ORA>3GOTO230
245 ONA GOTO250,270,150
250 PRINT:INPUT"Which row to change";A
255 IFA>RTHENPRINT"Only"R"rows!":GOTO230
260 FORX=1TOC:PRINTW$(X,A);:NEXT:PRINT
265 FORX=ATOA:PRINT"Change ";:GOTO135
270 FORX=1TOR:FORY=1TOC:PRINTW$(Y,X);:NEXT:PRINT:NEXT:GOTO150
275 DATA0,-1,1,-1,1,0,1,1,0,1,-1,1,-1,0,-1,-1
```

COMING PROGRAMS: Find the land area in an irregularly shaped block.
Solve simultaneous equations. A quicksort routine.

— SUPERBOARD —

WORD CAGE

S	I	L	W	S	H	E	B	R	E	W	O	R	D	S
L	N	P	O	A	E	E	L	N	A	J	J	E	W	S
L	A	O	A	V	R	I	A	C	E	R	T	T	Q	A
R	E	E	I	L	E	S	R	R	I	U	E	U	W	O
N	P	C	D	T	E	R	U	O	T	T	E	A	G	Y
L	O	S	T	I	C	S	U	I	M	S	R	R	N	T
E	E	I	R	U	A	E	T	T	T	E	E	A	Y	I
A	M	O	T	L	R	S	L	I	A	B	M	N	R	T
R	T	P	E	I	N	E	O	F	N	R	S	G	O	N
S	P	M	Y	I	D	N	S	E	E	E	E	E	T	E
I	A	L	M	R	I	A	E	G	N	R	R	T	S	D
F	E	A	A	N	T	R	R	I	C	O	T	A	I	I
I	G	O	G	Y	G	E	L	T	M	O	V	E	H	L
E	S	P	I	H	S	N	O	I	T	A	L	E	R	S
G	R	U	B	Z	R	U	W	P	R	I	Z	E	L	N

RULES — There are three parts to THE WORD CAGE. (1) clues and (2) quiz, which lead to (3) the final answer, the MYSTERY WORD. The clues and quiz are hidden in the grid — up, down, across, backward or diagonally. First circle the clue words (we've found the first word for you). You may find the same letter in more than one word, so circle each letter clearly. Next, circle the quiz words; the first letter and number of letters are given for each. When you have circled all the clue and quiz words, the remaining uncircled letters will spell out the answer to this week's WORD CAGE.

CLUES FOR YEHUDA AMICHAI

A – Article, Aware; **F** – Fame; **G** – Germany, Greenberg; **H** – Heart, Hebrew, History; **I** – Ideal, Identity, Image, Institute; **J** – Jews; **L** – Lectures, Lines, Literature, Love; **M** – Memories, Move; **N** – Novel; **P** – Palestine, Play, Poem, Poetry, Prize; **Q** – Questioning; **R** – Range, Rare, Reflections, Relationships; **S** – Share, Stories; **T** – Tradition; **W** – Wars, Words

QUIZ

1. Was born here in Germany (W-8)
2. Lives here (J-9)
3. Known as the voice of this (I-6)

ANSWERS NEXT MONTH!

GRAPPLING WITH THE APPLE

As a User Group listed in the pages of various electronics and computer magazines, I am continually bombarded with advertising literature offering all manner of related equipment. Lately, there has been a flood of such mail for Apple compatibles (read Clones).

I am always interested in anything which might benefit members, and so I will look at the pros and cons of owning an Apple. Part of the reason for this is that OSI, along with older machines like Atari, Sorcerer, Compucolour, Pet, Sinclair ZX, TI 99/4, Super 80 and others, are dead ducks commercially.

Apple offers a machine that is similar to the OSI in a number of areas. The Basic is almost identical, and will run most OSI programs, excepting the graphics ones, without changes. The machine has a 6502 processor. The famed Appledos is a lot like Picodos, and rather slower at that. It has always amazed me that people were prepared to pay nearly $2000 for them. To me, that price represents very poor value for money. Equally amazing were the reasons for the Apple's success:-

1 Aggressive marketting - especially in schools and research.
2 Cleverly designed expansion slots- Apples ain't always Apples.
3 Cheap, low power use dynamic RAMs, allowing lots of memory.
4 Poor cassette interface - most Apple owners have disk.

Apple have other advantages, the input buffer being 255 characters, the screen width being not unlike 24 or 48 character OSIs, and a Hi-res capability.

Disadvantages include the difficulty in driving the Hi-res, as the Basic does not support it, the expense in adding even the most necessary boards such as Centronics and RS-232 output/input and disk board, and the real biggie! The software switches that control various functions and screens are poorly designed. The main effect of this is the inability to reset the machines on a hangup. Apple owners are forever flipping the power off and on, of course losing the memory in the process. This explains the absolute necessity of having disk drives, but even so, it is poor compensation if you have just

typed in 6k of program or text.

However the really important advantage is the enormous software support that the Apple enjoys. There are literally hundreds of both entertainment and business programs for the Apple. If you add a Z80 board, and a 16k memory board, you have access to the huge CP/M library as well! If your budget runs to a 80 column board, expensive wordprocessors like WordStar are available.

Most Apple users are so pampered with software that they never get around to writing any programs themselves, but spend most of their time figuring out how to use it or copy it. User Group meetings are mad copying sessions!

Enough has been said to put you in the picture as to what the Apple offers. An ex OSI owner would have no problems in using the machine.

Now the free enterprise system being what it is, and there being no copyright recognition in Hong Kong and Taiwan, smart oriental businessmen discovered that an Apple II+ clone could be built for about $200 or less. (Apple, of course, have known it all along, as the IIE is built in Singapore) Even smarter Aussie middlemen discovered that you could import them for about $400 including freight and sales tax etc, and hawk them to gullible schoolteachers for $950 or even more, taking advantage of all Apple's good promotional work, and doing precious little useful work themselves.

Apples do in fact offer some considerable advantages over OSIs, and if you want one,the way to do it is to order direct from Taiwan or Hong Kong, just as the way to buy a BBC is to get it direct from the UK instead of getting it from some rip-off barston.

If you would prefer a more recent machine, then wait a few months for a Taiwanese IBM clone, as these are about 400% overpriced as well, or about a year for Apple's latest Macintosh. (Apple sell these to US schoolteachers for $1100 which is rather less than the $3750 that they will cost here.) If you want a Commodore 64, might as well get one, as market forces ensure that there is no chance that it will be copied as the original is so reasonable!

The address to write to is:- Bison International Co, Ltd,
P O Box 8-231 Taipei,
Taiwan R.O.C.

I have a limited number of copies of the current price list of hardware, software, and books. Forward a SAE if you want one. Prices are in $US.

It would be as well, here, to give some advice about importing. The Customs dept have some rip-off deals as well. One of these is to charge sales tax at 22½% on the insurance and air freight. I would recommend that you get a separate bank draft to pay for these items. (about 25% of cost). As software and books are not as yet taxed, you might also include these in the separate draft or you will be screwed for these as well. Have the supplier state the cost of the hardware only on the declaration.

I would recommend that you buy the disk drives in Australia. Apple drives are rather cheap here, the cost being about $240. However the plug-in boards are expensive here, so get them when you buy the computer.

- -

UNRELIABILITY

You can't always believe what you read in the papers, and recently I read a piece on Fake Apples in the Weekend Australian, which has an excellent section on computers each week. It was stated truthfully, that the clones had unreliable power supplies. What wasn't mentioned was that the Apple supply is unreliable anyway, and unfortunately it was copied. Only a very few of the Taiwanese Apples that many of my mates own have given any trouble, and the clones are no more expensive to have repaired than the original!

MORE ON FORTH COLOUR SCREENS

by Frank Allan

Inspired by 'King Corky' in the latest KAOS I have at last started to learn how to drive Forth. Here are some modifications to the screens which he produced for colour monitors. I have shortened the definitions of the colours and the 'wash' functions, and I have added a couple of other functions which will give you a different colour for the screen you are editing (presuming you are using the screen editor, which most people seem to be doing).

Hopefully, now I'll start developing some new ideas instead of just modifying other people's inspirations. If someone cares to give me any pointers on how to make these screens more efficient, please drop me a line or give me a ring (be warned - I'm in Adelaide) as its hard to keep up with things over here.

My address is

```
SCR # 18
0 ( Screen Wash Colors                                    )
1
2 DECIMAL
3 : WHT  0 ;    : BLA  1 ;    : SKY  2 ;     : PUR  4 ;
4 : BLU  6 ;    : YEL  8 ;    : GRE 10 ;     : RED 12 ;
5 : NUL  1 ;    : INV  + 1 ;
6 HEX
7 : COLOR-ON        5  DE00  C!  ;
8 : COLOR-OFF       1  DE00  C!  ;
9 : WASH            E000  800  ROT  FILL  ;
10                       ( fill the screen with a color )
11
12 COLOR-ON  BLA  WASH   ( turn on color and inverse screen )
13 DECIMAL
14 19 LOAD               ( load next screen )
15 ;S
```

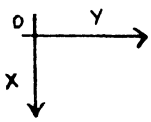
```
SCR # 19
0 ( Screen Colors continued                               )
1 HEX
2 : HIWASH     E000  440  ROT  FILL  ;
3                  ( fill top half of screen with a color )
4 : LOWASH     E440  400  ROT  FILL  ;
5                  ( fill lower half of screen with a color )
6 : SCRWASH    E180  400  ROT  FILL  ;
7                  ( fill editing screen with a color )
8 : NOSCRWASH  DUP  E000  180  ROT  FILL  E580  300  ROT  FILL  ;
9                  ( fill screen except for edit screen area )
10
11 DECIMAL
12 20  LOAD        ( load next screen )
13
14
15 ;S
```

```
SCR # 20
0 ( Strip, Stripe and BootScreen Colors                   )
1 HEX
2 : STRIP   SWAP  3B  SWAP  40  *  E004  +  SWAP  ROT  FILL  ;
3                ( fill one line of editing screen )
4 : STRIPE  SWAP  40  SWAP  40  *  E000  +  SWAP  ROT  FILL  ;
5                ( fill one line right across screen )
6 DECIMAL
7 : BS      BLU  WASH  29  RED  INV  STRIPE  STOP  ;
8                ( boot screen colors - change as desired )
9 ( Instructions for STRIP and STRIPE                     )
10 ( for a green stripe on line 10 use      10 GRE STRIPE    )
11 ( for inverse blue strip on line 15 use  15 BLU INV STRIP )
12
13
14 ;S
15
```

FASTDRAW REVISITED
by Gerard Campbell

Looking back through previous newsletters, I 'discovered' the FASTDRAW routine in the March '83 'SUPERBOARD' column and decided to investigate and use this clever piece of code. The version of FASTDRAW in that issue had a couple of bugs. I have corrected these and with the help of 'The First Book of OSI' and my own disassembler explained how the routine works below, as well as including a shortened version of a program I wrote utilising this routine. Remember : Better late than never. And thanks to Ed Richardson and OSUG for the interesting articles they keep churning out.

FASTDRAW routine:




```
 5 0000           ; For 24X24 screen and standard SB II.
10 0000           ; User call of the form C=USR(C)X,Y,N$
20 0000           ; Where X is row ,Y is column ,N$ is
30 0000           ; special string as descirbed in KAOS
40 0000           ; newsletter MARCH '83 page 4.
50 0000           ;
60 02A1             * = $02A1 ; relocatable
70 02A1 20AEB3        JSR $B3AE ; input byte parameter. see #1.
80 02A4 A000          LDY #00
90 02A6 84FE          STY $FE
100 02A8 86FF         STX $FF ; row number in $FF
110 02AA 46FF         LSR $FF ; screen position to print is
120 02AC 66FE         ROR $FE ; SP=$D000+Y+(X*32) or
130 02AE 46FF         LSR $FF ; SP=$D000+Y+(X*256)/8
140 02B0 66FE         ROR $FE ; so let $FF equal number
150 02B2 46FF         LSR $FF ; of pages ,divde by 8 and
160 02B4 66FE         ROR $FE ; shift remainder to $FE .see #2.
170 02B6 2002B4       JSR $B402 ; see #3.
180 02B9 8A           TXA ; put column in accumulter
190 02BA 18           CLC
200 02BB 65FE         ADC $FE
210 02BD 85FE         STA $FE   ; add column to $FE
220 02BF A5FF         LDA $FF
230 02C1 69D0         ADC #$D0  ; finally add $D000
240 02C3 85FF         STA $FF ; $FE/$FF is draw at position
250 02C5 2001AC       JSR $AC01 ; check/pass coma in USR-
260 02C8 20C1AA       JSR $AAC1 ; evaluate expression see #4
270 02CB A0FF         LDY #$FF
280 02CD C8     GTSTPR INY
290 02CE B1AE         LDA ($AE),Y ; Get string parameters
300 02D0 AA           TAX         ; From variable table and
310 02D1 96AC         STX $AC,Y ; store eleswhere .see#5
320 02D3 C002         CPY #02
330 02D5 D0F6         BNE GTSTPR
340 02D7 88           DEY
350 02D8 88           DEY
360 02D9 845F         STY $5F     ; Leave string mode.
370 02DB B1AD   MORCHR LDA ($AD),Y  ; Get graphic character
380 02DD 91FE         STA ($FE),Y  ; Store in screen memory
390 02DF E6AD         INC $AD  ; Get next string element
400 02E1 D002         BNE NOHIGH   ; Another page ?
410 02E3 E6AE         INC $AE
420 02E5 C6AC   NOHIGH DEC $AC ; Shorten string length counter.
430 02E7 D001         BNE ADOFST ; Add offset to screen
440 02E9 60           RTS              ; position ?
450 02EA B1AD   ADOFST LDA ($AD),Y ; Get increment element
460 02EC 18           CLC
470 02ED 65FE         ADC $FE  ; Add increment to sceen
480 02EF 85FE         STA $FE  ; pointer $FE/$FF
490 02F1 9002         BCC NOPAGE
500 02F3 E6FF         INC $FF
510 02F5 E6AD   NOPAGE INC $AD  ; Make $AD/$AE point to
520 02F7 D002         BNE NOPGE2 ; next string element
530 02F9 E6AE         INC $AE
540 02FB C6AC   NOPGE2 DEC $AC    ; Decrement string length
550 02FD D0DC         BNE MORCHR ; counter and test for end.
560 02FF 60           RTS
```

NOTES:

#1. Gets next character i.e. 'X' from USR statement, evaluates it, tests it for range 0<=X<=255 and stores it in $AE and X register.

#2. The March '83 newsletter had 3 LSR's followed by 3 ROR's and hence some information was lost and the routine worked, but not as expected. (Try putting original routine in BASIC program below.)

#3. Checks for and passes comma, evaluates 'Y' in USR statement and puts tested value in $AE and X register.

#4. When $AAC1 evaluates the string, N$, it leaves the memory location of the string description in the variable table in $AE/AF. This points to the string length and the two locations after the string length describes the actual memory location where the string is defined.

#5. The string length is put into $AC and used as counter. The memory location of the string is put into $AD/$AE to be used for indirect addressing.

BASIC PROGRAM- 'ALIEN TARGET'

Below is a BASIC program which utilises the FASTDRAW routine to create an animated flapping alien that materialises and proceeds to meander across the screen. You, being a member of the KAOS Galactic Police, must get the top middle part of it within your sights and whop 'im. But BEWARE!! He has a nasty force field that comes on now and then, which will destroy you.
I've tried to keep it short and will send the KAOS library a copy. A short version is presented with 1 type of alien,along with optional lines for 3 types of flapping critters.

```
2 REM .CHR$(127) is DABUG fast screen clear - replace appropriately.
10 GOTO 4000
100 C=USR(C)X,Y,A1$
110 CO=CR:POKE KB,127:K=PEEK(KB):IF K<>223 THEN 140
125 POKE CR+32,188:IF CR=AP-32 THEN 3000
130 ZZ=1^1:POKE CR+32,32
140 CR=CR+(K=127)-(K=191)+(K=251)*32-(K=253)*32
145 IF CR>SB THEN CR=CR-ZT
150 IF CR<SU THEN CR=CR+ZT
152 C=USR(C)X,Y,A2$ : IF CO=CR THEN 185
160 POKE CO,32:POKE CO+64,32:POKE CR,191:POKE CR+64,193
185 C=USR(C)X,Y,A3$ :CT=CT+1:IF CT<CK THEN100
190 IF FL=1 THEN 700
195 G=RND(1)*50:IF INT(G)=4 THEN FL=1
410 CX=INT(-1+RND(1)*3):CY=INT(-1+RND(1)*3)
415 DF=AP-(CR+32):N=X:M=Y:X=X+CX:Y=Y+CY
418 IF ABS(DF)=32 THEN X=X+SGN(DF)
420 IF ABS(DF)=1 THEN Y=Y+SGN(DF)
425 IF X<2 OR X>30 OR Y<3 OR Y>25 THEN 1000
455 C=USR(C)N,M,BK$ : C=USR(C)X,Y,A1$
470 AP=TS + Y + (X*32) +1 :CT=0:GOTO 100
700 N=X-1:M=Y-1:J=J+1:IF J>3 THEN J=1
702 ON J GOTO 704,706,708
704 C=USR(C)N,M,S1$ :GOTO 715
706 C=USR(C)N,M,S2$ :GOTO 715
708 C=USR(C)N,M,S3$
715 IF PEEK(CR+32)<>32 THEN HT=1:POKE 530,0
720 SD=SD+1:IF SD>50 THEN FL=0:SD=0
725 IF FL=0 THEN C=USR(C)N,M,SK$
730 IF HT=0 THEN 100
735 HM=HM+1:POKE CR+(HM-1)*32,32:POKE CR+(HM-1)*32+64,32
738 IF CR+HM*32+64>54140 THEN 760
740 POKE CR+HM*32,191:POKE CR+HM*32+64,193
750 FL=1:GOTO 100
760 FOR H=1 TO 5:FOR G=1TO8:POKE CR+HM*32+H*(DR(G)),172
770 POKE CR+HM*32+(H-1)*(DR(G)),32:NEXT G:NEXTH:MK=MK+1
778 IF MK=4 THEN PRINT CHR$(127);"END OF GAME...":PRINT
779 IF MK=4 THEN PRINT"  ALEINS KILLED WAS ";AK:END
780 HT=0:HM=-1:POKE 530,1
1000 POKE 11,161:POKE 12,2:FL=0 :CR=53734
1001 PRINT CHR$(127) : C=USR(C)N,M,BK$
1005 X=15:Y=15:AP=TS+1+Y+(32*X)
1010 FOR H=10 TO 1 STEP-1:FOR G=1TO8
1015 POKE AP+H*(DR(G)),LN(G):NEXTG:NEXTH
1020 FOR H=10 TO 1 STEP-1:FOR G=1TO8
1025 POKE AP+H*(DR(G)),32:NEXTG:NEXTH
1030 C=USR(C)X,Y,A3$
1040 POKE CR,191:POKE CR+64,193:GOTO100
3000 FOR Q=1 TO 8: C=USR(C)X,Y,E1$
3010 GOSUB 3200:C=USR(C)X,Y,E2$:GOSUB 3200
3020 C=USR(C)X,Y,E3$:GOSUB 3200:NEXTQ
3045 FOR D=1 TO 8:FOR Q=1 TO 8
3050 POKE AP+D*(DR(Q)),172:NEXT Q:NEXT D
3055 PRINT:PRINT"   GOOD SHOT !!!":AK=AK+1:IF AK=4 THEN CK=3
3058 PRINT:PRINT"MEN LEFT ";4-MK: PRINT:PRINT"ALIENS KILLED ";AK
3060 FOR I=1 TO 2000:NEXTI:GOTO1000
3200 FOR I=1 TO 90:NEXTI:RETURN
4000 PRINT CHR$(127)
4010 POKE 11,161:POKE 12,2:REM FAST DRAW
4020 DATA 32,174,179,160,0,132,254,134,255,70,255,102,254,70,255,102
4040 DATA 254,70,255,102,254,32,2,180,138,24,101,254,133,254,165,255
4060 DATA 105,208,133,255,32,1,172,32,193,170,160,255,200,177,174
4080 DATA 170,150,172,192,2,208,246,136,136,132,95,177,173,145,254
4100 DATA 230,173,208,2,230,174,198,172,208,1,96,177,173,24,101,254
4110 DATA 133,254,144,2,230,255,230,173,208,2,230,174
4125 DATA 198,172,208,220,96
4128 REM Get lines 4020 to 4125 right or program may crash.
4130 FOR R=673 TO 767:READ C:POKE R,C:NEXT
4135 DATA 196,1,232,1,198,31,34,131,1,232,1,131,31,34
4160 DATA 197,1,232,1,195,31,34
```

```
4170 FOR I=1 TO 7:READC:A1$=A1$+CHR$(C):NEXT
4175 FOR I=1 TO 7:READC:A2$=A2$+CHR$(C):NEXT
4180 FOR I=1 TO 7:READC:A3$=A3$+CHR$(C):NEXT
4235 FOR T=1 TO 11:READ C:BK$=BK$+CHR$(C):NEXT
4240 DATA 32,1,32,1,32,30,32,1,32,1,32
4245 FOR I=1TO27:READC:S1$=S1$+CHR$(C):NEXT
4248 FOR I=1TO27:READC:S3$=S3$+CHR$(C):NEXT
4250 FOR I=1TO27:READC:S2$=S2$+CHR$(C):NEXT
4255 DATA 32,1,128,1,128,1,128,1,32,28,143,4,136,28,143,4,136,28
4260 DATA 32,1,135,1,135,1,135,1,32
4265 DATA 204,1,131,1,131,1,131,1,205,28,140,4,139,28,140,4,139
4270 DATA 28,203,1,132,1,132,1,132,1,206
4275 DATA 210,1,135,1,135,1,135,1,207,28,136,4,143,28,136,4,143
4278 DATA 28,209,1,128,1,128,1,128,1,208
4300 FOR I=1TO27:READ C:SK$=SK$+CHR$(C):NEXT
4305 DATA 32,1,32,1,32,1,32,1,32,28,32,4,32,28,32,4,32,28,32
4310 DATA 1,32,1,32,1,32,1,32
4320 FOR I=1TO17:READC:E1$=E1$+CHR$(C):NEXT
4330 FOR I=1TO17:READC:E2$=E2$+CHR$(C):NEXT
4335 FOR I=1TO17:READC:E3$=E3$+CHR$(C):NEXT
4340 DATA 32,1,193,1,32,30,192,1,42,1,194,30,32,1,191,1,32
4350 DATA 32,1,139,1,32,30,132,1,226,1,132,30,32,1,139,1,32
4360 DATA 190,1,139,1,189,30,132,1,188,1,132,30,189,1,139,1,190
4370 FOR T=1 TO 8:READ DR(T),LN(T):NEXTT
4380 DATA -1,131,1,131,32,139,-32,139,33,190,-33,190,31,189,-31,189
4400 KB=57088:CR=53734:AK=0:MK=0:SB=54208:ZT=896:SU=53312:CK=4
4420 PRINT CHR$(127);"Instructions :":PRINT
4422 PRINT:PRINT"Get the TOP-MIDDLE part"
4423 PRINT"of the Alien within ":PRINT"  your sights and":PRINT
4424 PRINT SPC(6);"FIRE !!!":PRINT
4425 PRINT:PRINT"  ...#1 IS LEFT":PRINT
4430 PRINT"  ...#2 IS RIGHT":PRINT:PRINT"  ...#6 IS UP":PRINT
4435 PRINT"  ...#7 IS DOWN":PRINT:PRINT"  ...#3 IS FIRE":PRINT:PRINT
4490 PRINT:INPUT"Ready Y/N.";R$:IF R$<>"Y" THEN 4490
4500 TS=53248:POKE 530,1:GOTO 1000
4550 REM ######### ALIEN TARGET ############
4560 REM ## by Gerard Campbell for KAOS ##
4600 REM Ctrl/C works only during player hit section.
4610 REM When alien leaves screen limits ,it re-materialises at centre
4620 REM You must hit top mid part of alien who has some intelligence.
4710 REM This is a direct BASIC 'SAVE'.
OK
```

```
1 REM Add/Change these lines for 3 types of Aliens.
100 C=USR(C)X,Y,N1$
152 C=USR(C)X,Y,N2$ : IF CO=CR THEN 185
185 C=USR(C)X,Y,N3$ :CT=CT+1:IF CT<CK THEN100
455 C=USR(C)N,M,BK$ : C=USR(C)X,Y,N1$
1002 ON INT(RND(1)*4) GOSUB 1100,1200,1300
1030 C=USR(C)X,Y,N3$
1100 N1$=A1$:N2$=A2$:N3$=A3$:RETURN
1200 N1$=B1$:N2$=B2$:N3$=B3$:RETURN
1300 N1$=C1$:N2$=C2$:N3$=C3$:RETURN
4185 FOR I=1 TO 9:READC:B1$=B1$+CHR$(C):NEXT
4190 FOR I=1 TO 9:READC:B2$=B2$+CHR$(C):NEXT
4195 FOR I=1 TO 9:READC:B3$=B3$+CHR$(C):NEXT
4200 DATA 227,1,3,1,228,30,189,2,190,234,1,3,1,235,30,201,2,200
4205 DATA 224,1,3,1,225,30,143,2,136
4210 FOR I=1 TO11:READC:C1$=C1$+CHR$(C):NEXT
4215 FOR I=1 TO11:READC:C2$=C2$+CHR$(C):NEXT
4220 FOR I=1 TO11:READC:C3$=C3$+CHR$(C):NEXT
4225 DATA 242,1,154,1,245,30,143,1,58,1,136
4228 DATA 243,1,154,1,246,30,192,1,226,1,194
4230 DATA 244,1,154,1,247,30,189,1,232,1,190
OK
```

THE MEETING WAS KAOS

by King Corky

The March meeting, being the last before the end of the school term, was another session for the kids. The usual die-hards braved the early morning chill and rain to arrive at the ungodly hour of 9.30am. After setting-up the 'little monsters', we eagerly? awaited the arrival of those other little monsters. Alas, to our utter disbelief and dismay, (I also tell fibs), a mere handful turned-up to be once gain astounded by the technical brilliance of both man and machine.

If one took the trouble to glance around the rooms, one would have noticed the looks of anguish and despair on the faces of the owner/operators of those loveable little piles of electronic mahem, (especially mine), as they went about their tedious task of having to play with their own, (or someone elses), while waiting for the busses to arrive nd disgorge their cargo of itchy little fingers. Needless to say, everybody was bitterly disappointed when about half-a-dozen only showed up to match their wits with the products of an equal number of devious minds.

Anyway, to while away the time, some of us were treated to a display of some very nice hi-res colour graphics on DJA's Apple. David always manages to hide some very interesting things in his apples, apart from worms.

Before I go any further, I would like, on behalf of all participating members, (huh), to welcome back the newlyweds, George and Irene. George said that they didn't even notice the lack of heating and lighting in the rear office of the factory, (a couple of hours I could understand, but four days...really).

We now have a vendors section in the newsletter, for the free advertising of those little goodies that you would like to foist upon us. This is not for the one-off trading post type items. Contact John Whitehead for inclusion in his list.

Bill Chilcott has advised us that Data Parts can supply VerbatimHD 650X Quad Density disks for 8" look-a-likes, for $6.00 plus 95c tax. These disks are very good quality with re-inforced hubs etc. Data Parts will only supply these disks in multiples of 10. 10 will cost you $69.50 plus $3.50 for certified postage, order from Data Parts, 11 Edward St, Shepparton, 3630. Ph. 058 21 7135. If you require less than 10 disks you will have to order through KAOS, you must send money, ($6.95 per disk), with your order and allow extra for postage.

Libraries...I am now looking after the 8" disk library and David Dodds has the toy section, sorry, the mini floppies. Ron Kerry is getting old and can no longer manage to lug all those boxes of books upstairs, so the reading library will in future be available in the tea room on the ground floor. Ron is now lending out the 1st thru 5th books of OSI and the Micro book on OSI, each at $1 per meeting month. The cost is high because the costs were high, if you catch my drift.

Clive Harmon, the motor-mouth of the airwaves, is our amateur radio rep. and is looking for software applicable to amateur radio. David Anear has some routines for the Apple, such as a dipole calculator and I think I have a distance calculator and somewhere, on a scrape of paper, the formulae for various aerial constructions. John Whitehead should still have similar routines on cassette. Give Clive a buzz for any info or contributions.

President Warren moved a motion, (and was promptly asked to clean it up), that we should allow the BBC micro into the hallowed sanctum of KAOS. Being a 6502 club and the BBC being a 6502 machine, the consensus was yes. The next passage should be read aloud with a strong German accent.
Vot ot is dis, zee BBC infiltrating KAOS, himmel, vot vill be next. But zen maybe is not such a bad idea, ja. Zee more in KAOS, zee easier is should be to get Smart.

A new chip is soon to be available. The 16 bit version of the now very old but best in the world 6502. Designated the W65SC816, this chip will eat alive ALL the other 16 bit processors. Apart from the usual 16 bit operations, this little beauty has a pin that can be set to allow the thing to emulate an 8 bit 6502. You can therefore have the best of both worlds without the need for dual processors, even though it will handle co-processors with ease. Each instruction requires only a two, that's 2, part opcode rather than the usual three, (or even more). This makes for some very fast cycle times. For more info, contact David Anear. Bye for now.

AFTER FOUR YEARS, I FINALLY SOLD MY BEAST

by David Anear

This is not the first time I have attempted to change from the Ohio, the last time was in March '82 when I bought a Hitachi Peach. That was a disaster and I nearly drove my wife, myself and especially George from Compsoft mad, trying to come to grips with its poor software and bad documentation.

Thankfully George took it off my hands and got me a new C8P DF with the Hi-Res option. This was a delight after the Peach and gave me faultless performance for the last 18 months; but, what do you do when you have all the software, have done all the interfacing you want to do and are tired of lugging 100 lbs of hardware to the KAOS meeting; YOU LOOK FOR A NEW MACHINE!

Herein lies the problem ---- WHICH MACHINE?

I really wanted to stay with the 6502 as it is the best of the 8 bit micros, and I had recently taken a position at one of the universities designing interfaces for 6502 machines.
There were in my opinion only 5 contenders worth looking at:-

(a) Atari - I have looked at this machine many times as it is a brilliant games machine but it has a slow cumbersome DOS. They are overpriced in this country and software and add-on hardware is also expensive.

(b) BBC Micro - Another brilliant machine, but the Australian agents charge too much for it and are more of a hinderance than a help. It also has very little software available as yet.

(c) Commodore - Over-complex and expensive disk system and poor BASIC as it will not drive Hi-Res without messing about.

(d) Rabble 65 - My second choice having owned one of the first, but it has no graphics as yet, and the software available is limited unless you use Ohio software which it will handle. The hardware is very good and it is a perfect replacement for an Ohio, but I needed a change.

(e) Apple - I mainly work with Apples at the Uni but I would not have considered buying one as they are overpriced, but along came the Apple copies and I decided to buy one of them.

The amount of software available for these machines is unbelievable with over 1000 games titles on the market at any one time, as well as utilities, business and graphics programs. With over a million Apples and probable twice as many copies, the amount of software being generated per week is more than was written for the Ohio in a year.

I plugged my new machine in and proceeded to boot up a disk, and nearly fell asleep, it was s l o w, (at least the Atari plays music to keep you awake), but I suppose after 4 years of using Ohio 8" drives any other would be slow by comparison. The disks can hold 140K and the DOS is similar in operation to Compdos. There are also a few nice features like being able to BRUN a machine code program directly and the ability to control the machine with a Text File.

So there it is. I am pleased with my new machine but would not have missed owning an Ohio for the world. It taught me how to handle a machine with little or no documentation, how to handle interfacing, and is still, in my opinion, the best non-graphics machine available.

I still mess around with Ohio's, as I have one at work, and I have had a lot of experience with the machine, but I would like to hear from anyone who is interested in forming a sub-group for the Apple, as the local Apple group is not to my liking, and who wants to leave KAOS anyway!!!

OSI HISTORY Part 5

by Eric Lindsay

There are a variety of unofficial sources of information regarding Ohio Scientific Instrument computers. The first of these is obviously OSI's own Technical Newsletter, which was sent to OSI dealers to inform them of errors and of changes in the product. If you can find an ex OSI distributor, you may well be able to buy copies of some of these - that is how I obtained mine. Another source of some of the Technical Newsletters is the partial reprint of them done by Hofacker, and distributed in the USA by Elcomp. Since these are, for most people, the only outside source of information on their OSI microcomputers, it is worth reviewing the Elcomp/Hofacker books.

"The First Book of OSI", edited by J Clothier and W Adams, contains material introducing the OSI line, partial memory maps, some subroutine entry points, various short programs, how to add RS232 interface to the earlier version of the C1P, changing the printer and cassette to 600 baud, plus a few memory tests from the newsletters, and uncommented listings of the monitor routines.

"The Second Book of Ohio Scientific", by the same editors, relates more to the C2 and C8P models, and reprints material on the 65U business operating system. It would be very good value if you happened to have an "unofficial" copy of the 65U operating system, however most hobby users seem to prefer OS65D. Both of these books are totally unorganised, and tend to be hard to follow. They contain material suited to beginners, mixed with machine code modifications, and hardware changes.

"The Third Book of Ohio Scientific", by S Roberts, who also wrote the next two books, is much more consistent. It contains a variety of hardware projects, mostly relying upon buying an expansion board from Elcomp (incidently, the mother board can also be used by Apple owners). However there is a full range of circuit diagrams, so experimenters can build their own boards. You have instructions on making a VIA card, a 2716 EPROM burner, together with source listing for the software to run it. You can add an AY-3-8912 programmable sound generator chip, which provides three square wave outputs, and a noise generator. The book gives details of the chip, the circuit, and some programs. Since the new model Superboards contain an 8 bit digital to analog converter (DAC), there are also instructions on using this. Adding a joystick is covered, since this requires extra wiring on the new model Superboard. You also have chapters on adding an 8k EPROM board, an analog to digital converter, and a two port PIA.

The fourth book in the series is "Very Important Programs for the Ohio Scientific". This contains about 40 reasonably simple programs, written in Microsoft Basic. There are a few utilities such as memory tests and hex dumps, ten games programs, a few simple personal programs, and a lot of mathematical routines. The book also contains a few hints and tips that may be of help to beginners, and a partial listing of entry points to various Basic routines built into the system. It really is more suited to the beginning programmer. Most of the programs listed would run on any computer that has Microsoft Basic.

"The Fifth Book of Ohio Scientific" is a more advanced selection of programs, mostly for the Superboard. It would be suitable to someone about to

start working in machine code. It includes a text editor, a video memory swap for animation, how to make OSI-compatible tapes with a Commodore Pet, and a few longer games in Basic. There is also a mailing list program, and an invoice program. For reasons unknown it ends with a page of board modifications for a hard disc controller board, and a list of memory locations used by OS65U. I get the distinct impression these were thrown in to fill out the book.

The books are available from the publishers: Ing. W. Hofacker GmbH, Tegernseerstr.18, D-8150 Holzkirchen, West Germany, or the US distributors: Elcomp Publishing, Inc. P O Box 1194, Pomona, CA. 91769 USA. The price for these 130 page paperbacks is US$7.95 each.

KAOS-W.A.

Our last meeting saw 8 members (including 2 new members) and 3 computers with a lot of sharing of ideas etc. taking place. It was decided to place an add in the Sunday Times a week before each meeting, both to remind existing members of out meetings and to try to reach possible new members.

Would those members who have not been to a meeting recently but who have borrowed an item from the library, please return it at our next meeting or contact Arthur Shepperson so you can arrange to return it direct to him.

Our next meeting is on Sunday May 19th at my home, 3 Cloister Ave, Manning at 2pm. Anyone who requires a hardcopy program listing will be able to do so using my system (tape or disk).

See you there, Gerry Ligtermoet.

KAOS-N.S.W.

The next bi-monthly meeting of the KAOS-N.S.W. group will be on Sunday April 29th at 10am.

The meeting will be held in the Lugarno Girl Guides Hall. Remember, the meeting is held on the last Sunday of every even month.

For information contact N. Bate or N. Bissett

OSUG-MEETING

Queensland members please note that the next meeting will be on April 29th at the usual place and time.

TRAP FOR YOUNG PLAYERS

by Frank Allan

BEXEC* for 3.3 has the statement 'POKE133,122' in line 5. This causes no problems as long as you have 32K available. If , like me, you have memory or socket problems it can sometimes cause weird symptons. The problems started with the directory listing being corrupted, then spread to problems with strings, especially things like'DISK!"SE "+D$' which caused no end of trouble. The trouble was an intermittent in the socket of the 31st K of 2114's, and POKE133,122 was setting the top of memory (which is used by strings) higher than was actually available. The fix is quite simple, line 5 should read: 5 X=PEEK(133):POKE133,X-4:CLEAR: etc as previously. This will set the top of memory to what is actually available. The CALL statements later in BEXEC* will have to be adjusted also, but they will follow the same pattern.

FOR SALE

OSI Challenger 1P computer, 32K, with RS232 connected, joystick ports and joysticks, cassette ports, disk drive controller. Dabug 3. Fully metal case, fan built in. Accompanying software includes Sargon II chess, word processor, many games and a stack of documentation. $280.00
Contact Robin Ph.

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